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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/761,711	01/21/2004	Paul J. Hepworth	3271.2.20	3700
21552	7590	12/17/2004		
MADSON & METCALF GATEWAY TOWER WEST SUITE 900 15 WEST SOUTH TEMPLE SALT LAKE CITY, UT 84101			EXAMINER HESS, DANIEL A	
			ART UNIT 2876	PAPER NUMBER

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/761,711	Applicant(s) HEPWORTH, PAUL J.	
	Examiner Daniel A Hess	Art Unit 2876	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 13-16 is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 9-12, 17, 19 and 20 is/are rejected.
- 7) ☒ Claim(s) 6, 8 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date <u>5/17/2004</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5, 9 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu et al. (US 5,867,584).

Re claim 1: Firstly, regarding the phrase 'graphical code reader' in the preamble, the Examiner notes that this phrase should be considered in a broad sense. In its representation as zeros and ones on a computer, a digital image is indeed a graphical code, and the process of identifying an object can be regarded as decoding.

Hu et al. teaches object tracking in successive frames taken as input to a camera (entire document). In locating an object, Hu et al. evaluates candidate regions in a kind of decoding process to determine if an object is located in the candidate region. For the candidate regions where an object might be located in a succeeding frame, test windows are chosen based on the location of the object in a previous frame (see especially column 8, lines 34-41 and 45-50; see

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also column 2, lines 49-58 and column 8, lines 30-50), and where the objects are roughly expected to be based on position in previous frames.

Hu et al. fails to show that the region evaluated in a successive frame is exactly the same region as that where the object was found in the previous frame. However, in practice, for all but the fastest moving objects and slowest frame rates, an object's expected position will be fairly close to where it was in the previous frame.

In view of the fact that an object can be expected to be near where it was in the previous frame, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the same position as that of the previous frame as an estimated starting point to avoid more complex estimations shown in column 5.

Note that the tendency to attempt first to decode a region of a frame close to a successful decode of a previous frame can be expected in object tracking generally; there exists much art under the category of 'object tracking'.

Re claim 2: As column 2, lines 49-58 make clear, a series of regions employed in attempted object recognition (i.e. decoding), i.e. not only the closest one.

Re claim 5: Any camera such as that of Hu et al. can be regarded as having a 'first optical image' and a 'second optical image' if these two images are just taken as different regions of the camera input. Otherwise, the reasoning is similar to that of claim 1 above.

Re claims 9 and 10: These claims describe the apparatus of claims 1 and 2 respectively.

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Claims 3, 4, 7, 11, 12, 17 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hu et al. as applied to claim 1 above, in view of Margulis et al. (US 6,340,994).

Re claim 3 : Hu et al. fails to teach selection of candidate regions among the inputs of different cameras.

Margulis et al. teaches (see notably column 4, lines 10-36) the use of multiple cameras to track objects.

In view of Margulis et al.'s teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to include the old and well-known multiple camera arrangement of Margulis et al. in the teachings of Hu et al. because this enables better coverage of an area in which an object is being tracked.

It then follows that most often, the high-probability regions that are candidates in Hu et al. would most likely come from the same one of the multiple cameras as per Margulis et al. as they did in the previous frame.

Re claim 4: As column 2, lines 49-58 make clear, a series of regions employed in attempted object recognition (i.e. decoding), i.e. not only the closest one.

Re claim 7: See discussion re claims 1 and 3 above.

Re claims 11 and 12: These claims describe the apparatus of claims 1 and 2 respectively.

Re claim 17: An embodiment of multiple cameras was discussed re claim 3 above. It can be considered typical for each camera to have a lens associated therewith.

Re claims 19 and 20: In Margulis et al. it appears that the two cameras are both substantially similar (claim 19) and generally fixed (claim 20).

Allowable Subject Matter

Claims 13-16 are allowed.

Re claim 13, the prior art of record fails to teach or fairly suggest two lenses on different parts of an image sensor in combination with the various other recited limitations.

Claims 6, 8 and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The prior art fails to teach or fairly suggest, in addition to the various intervening limitations, that certain images that the recited images used for comparison have different resolutions, fields of view, and or distances. In general, the images compared by Hu et al. have similar resolutions/fields of view/distances.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Various other prior art, including notably Gu et al. (US 6,711,278), Paul et al. (US PG Pub No. 2002/0037770) and Morita (US 5,946,041) teach frame-by-frame object tracking.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel A Hess whose telephone number is (571) 272-2392. The examiner can normally be reached on 8:00 AM - 5:00 PM M-F.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael G Lee can be reached on (571) 272-2398. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



DH

DANIEL STCYR
PRIMARY EXAMINER

